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EPIDEMIOLOGY OF Q FEVER IN THE URBAN EAST BAY AREA*

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On March 18, 1959, a 26-year-old truck driver of Martinez, in Contra Costa County became ill with a disease which he thought was influenza. The onset was abrupt and the symptoms included chills and fever, severe headache, transient myalgia (especially in the back and neck muscles) and general malaise. An X-ray examination made five days after the acute onset revealed "increased bronchovascular markings". A specimen of whole blood was sent to the Viral and Rickettsial Disease Laboratory of the State of California Department of Public Health for routine serologic testing. The specimen was stored until a second specimen was submitted on April 15, 1959. When both of the sera were tested for complement-fixing antibodies to *Coxiella burnetii*, a four-fold increase was demonstrated between the acute and the convalescent specimens. This man was the first of several cases of Q fever which occurred in an essentially urban outbreak in the summer of 1959.

Training Assignment

I was assigned to the project early in July 1959, when there were approximately nine cases known from Alameda County and three cases from Contra Costa County. Because of the supposed relative rarity of urban Q fever (five cases had been reported from Alameda County since the disease was made reportable in 1955), the sudden increase in incidence was of considerable interest. I was fortunate in being assigned to work on this epidemiologic investigation. My as-

signment was with the Veterinary Section of the Bureau of Acute Communicable Diseases of the State Department of Public Health and that section made arrangements for me to work with the Bureau of Acute Communicable Diseases of the Alameda County Health Department.

I received an orientation concerning the organization and personnel of the health department of Alameda County, and we outlined a plan of attack which we hoped would determine the extent and reveal the source of the infections in this outbreak of urban Q fever. A meeting was arranged wherein members of the Alameda County Health Department, California State Department of Public Health, and the National Institutes of Health met to develop a protocol for the investigation.

Q Fever Described

Q fever is a rickettsial disease which is primarily a disease of animals. It has been known to exist among many animals of Australia, including cattle, goats, sheep, kangaroos, bandicoots, and also in certain species of ticks. This febrile disease was originally described and reported by Derrick in Queensland, Australia in 1937. It has subsequently been found to exist among a variety of host animals and in a variety of geographic locations, including the western hemisphere. Pioneering work was done by groups in northern and southern California in 1947 and 1948, and it was revealed that Q fever is endemic primarily in the bovine population in southern California and in ovine population in northern California. The rickettsia can be recovered

from the blood and other tissues during the rickettsemic period of the disease, but it is present in the placenta at a tremendous concentration (10^{12} guinea pig infective doses per gram of infected placental tissue). It is also present in the birth fluids in high concentration, and can be readily isolated from milk of infected post-parturient animals.

Q fever is a disease usually transmitted to man from animals and animal products. In the majority of cases in the endemic rural areas, the disease occurs among persons who have relatively close contact with infected sheep, goats, or cows, or with areas which have been contaminated by such animals. Dust from lambing pens is often incriminated, and, indeed, has been the source of living organisms which were isolated in several instances.

Investigative Program

Since Q fever is transmitted to man from animals and their products, we determined to investigate as many of the animal-human associations as we could in the area where human cases were occurring. Included in our investigative program were:

- a) Live lambs and kids at a local park playground, and sheep, goats, or cows similarly exhibited in other park areas within the urban area.
- b) Other instances of sheep, goats, or cows being quartered in the urban area.
- c) Movement of sheep, goats, or cows into the urban area by rail, water, or motor transport.
- d) Miscellaneous animals at nearby zoological gardens.

- e) Rats and mice which were reported as being increased in numbers in the areas where human cases had been reported.
- f) Ectoparasites, especially ticks and mites, which can serve as vectors.
- g) Animal by-products, such as hides, entrails, and manures produced, stored, or processed in the urban area.

In the conduct of the investigation, we contacted each of the reported cases, where possible, and obtained as much epidemiologic information as was available. Physicians who had treated Q fever patients were contacted and were similarly interviewed. Interviews with cases were conducted using the State Health Department Epidemiologic Case History form for Q fever (ACD-40) as a model, with expansion of the scope in respect to travel by the patient and other data of epidemiologic interest. Family members were interviewed to determine existence of similar illnesses, and in some instances it was possible to canvass neighbors for information concerning illnesses compatible with a diagnosis of Q fever.

In a large number of cases it was possible to obtain blood specimens from family members and neighbors for serologic testing for complement-fixing antibodies to *Coxiella burnetii*. Serum specimens were also obtained from persons in suspect locations or occupational groups. In this way, we obtained sera from employees of the park playground, two trucking companies, and from four gardeners along the Eastshore Freeway where animal manures were used as fertilizer in landscape gardening. Fire Department and State Highway Patrol personnel and employees of industries in critical areas were also sampled.

Serologic Testing

Serologic testing of humans was selected as one of our main sources of information for several reasons. First, the complement-fixing antibodies to *Coxiella burnetii* can be measured by standard laboratory procedures which are similar to those used for other tests. Such testing is currently being done routinely at the California State Department of Public Health's Viral and Rickettsial Disease Laboratory. The test is specific, and there are few or no false positive results at the antibody levels considered significant for identification of infected individuals.

Antibody levels usually rise to diagnosable levels in approximately two weeks after infection and persist for at least two or three years, with a fairly predictable decrease in levels. Second, the obtaining of blood specimens can be done rapidly and uniformly so that comparable objective results can be obtained from a relatively large number of subjects with a minimum of trouble and chance for error. Third, the evidences of antibodies to *Coxiella burnetii* was a direct measurement of the information we desired, i.e., the occurrence of infection in the urban population. Fourth, and most important, serologic testing procedures do not carry the risk of laboratory infection which must be considered when isolation and growth of the organisms are attempted. The literature abounds with reports of infections among laboratory personnel and among other personnel who merely work in the same buildings.

Results of serologic testing of the groups listed above allowed us to eliminate certain areas from primary consideration. Thus, the entire group of employees at the park playground were found to be without complement-fixing antibodies, so we could assume that the source of organisms was not there. The source of causative organisms was not found to be along the Eastshore Freeway, for no significant antibody levels were discovered in highway patrolmen or gardeners who worked continuously in those areas. Family members and neighbors in all areas except central Emeryville and northwest Oakland were not found to have significant complement-fixing antibody titers, and there was no indication that homes were the sources of the infection. In some respects, the incidence of infections began to resemble that of a sharply circumscribed area of endemicity surrounded by areas where there was no disease.

Several members of a car pool were tested to aid in determining whether the source may have been along the route travelled between the home of one diagnosed case in Alameda and his place of occupation in southeast San Francisco. When negative serologies were reported on all car pool members, the route to San Francisco along the Eastshore Freeway was further removed from primary concern.

Questioning of city and county administrative and law enforcement spokesmen produced information that

there had been no unusual quartering of domestic livestock in or near the city during the critical times. Emeryville was the site of some quartering of cows, but the numbers were minor. Goats were being quartered in west Oakland, but also in very small numbers. Poultry was raised in some areas, but there was no accurate information as to the numbers or location.

Data from local farm advisers, State Department of Agriculture, and cattle and sheep growers associations indicated that while considerable numbers of Australian sheep had been introduced into this country through Los Angeles, there had been no importation of those animals into the San Francisco Bay area at that time. Furthermore, there was no evidence of unusual transportation of cows or sheep into or through the urban area.

Zoological garden staff members and employees had not been troubled with any illnesses in 1959. Because there had not been any reported association of cases of Q fever with the employees or geographic location of the zoological garden, and since there was no use of animal fertilizer except that of well composted elephant manure, this area was dismissed as an area of primary consideration.

The role played by rodents and arthropods was an undetermined factor, and evaluation was left until the serologic data could be gathered. In past reported outbreaks, such animals were not clearly established as significant factors in the human infections.

Serologic testing of contacts of known cases indicated no occupational infections in any of the cases with residences in Alameda County. Similarly, in most of the cases residing in Contra Costa County there was no suspicious occurrence of illnesses among occupational associates. In one case with residence in Contra Costa County we were informed that the illness which we had diagnosed as Q fever was thought by him to be a case of severe influenza, and that there was a high incidence of "influenza" among the workers of an industrial concern in Emeryville which manufactured electrical conductors of various types. Investigation of that concern revealed that such, indeed, was the case, but it was shown that the cause of illness was *Coxiella burnetii* in many cases, instead of the suspected influenza virus. Some two hun-

dred employees, in three shifts, are employed at the plant in question. At least twenty-five had been absent from work for at least one week with a "flu-like" illness in the previous five months. Fifteen of those persons were contacted and tested for Q fever antibodies. Eleven were found to have had Q fever in the recent past. Three positive sera were then found among sixteen specimens obtained from firemen stationed across the street from this plant, while no cases were discovered in seven additional firemen stationed at a distant fire house. At the same time, two more positive sera were discovered in a group of fifteen specimens taken from employees of an animal product processing plant located immediately adjacent to the fire station and across the street from the manufacturing concern with the large number of ill employees.

Disease Pattern Developed

When the information was summarized and the cases were plotted on a map by place of residence and occupation, a definite pattern was seen to develop. A majority of the cases resided within a fan shaped area spreading out downwind from the suspected area of origin in Emeryville. Included in this pattern were the two neighborhood and one family member infections. At least twenty cases could be located within ten city blocks of the above mentioned suspected area of origin, and the concentration of residences of affected persons was higher in the up-wind portions of the pattern of infection.

Suspected Source

Suspecting that the processing of animal products in this instance could be the source and method of dissemination, we surveyed abattoirs supplying the visceral portion of the plant's raw material. We did not, however, find additional positive sera among workers in the two slaughter houses tested. It was discovered that a movement of potentially infective animals and their organs had taken place during the critical times, and that dates of slaughter of ewes coincided closely with approximate dates of infection. The source of the animals was the endemic area of the northern Sacramento Valley.

Returning to the plant which processed the animal products, we secured their cooperation in evaluating the possibility of the plant's being a source of organisms causing the Q

fever outbreak. Specimens of air were collected within the plant and the contained matter was injected into hamsters for growth of any contained organisms. Specimens of dust were collected from the walls of the plant and were also made into inocula for growth of *Coxiella burnetii*. Additionally, sentinel hamsters were quartered on the premises in the hope that their sera would demonstrate infection with Q fever. To date, such attempts at demonstrating viable *Coxiella burnetii* on the premises of the suspected source have not been fruitful.

The characteristics of the suspected source make it probable that it would effect dissemination of organisms which it received in high concentration. The plant is one which renders and recovers fats from animal tissues. Two types of tissues are received from differing sources and make up the bulk of the raw material used. From restaurants, butcher shops, and meat jobbing houses, "clean" scraps are obtained. They consist of tallow, bones, and meat which is unfit for sale through the usual outlets. The "clean" material is chopped by a high speed rotating bank of knives and is stored in an open tank for approximately thirty minutes before it is elevated into a rendering retort. Auger elevators effect the transfer from chopper to storage tank and from storage tank to rendering retort. The tissues are heated by steam to a temperature of approximately 40°C to prevent congealing of tallow. There is a loss of minute tissue particles into the surrounding air in the escaping steam and by centrifugal action of the augers. Accumulations of tissue particles on surrounding surfaces indicate that such loss is considerable. Retort temperatures are maintained at 210°F for thirty minutes, after which time the fat is extracted and the pressed residue is reduced to a fine, dry meal. The resulting meal contains 45 percent protein and is used as a base for poultry and pet foods.

Slaughter house offal is treated separately, largely because the resulting dark-colored fat would cause a loss of quality if all of the fats were mixed together. The incoming viscera are dumped into a storage tank until they can be processed. The intestine, stomach, and other fecally contaminated tissues are shredded by being

passed through a parallel series of circular knives. Removal of most of the intestinal contents is accomplished by tumbling the shredded tissues through a rotating, perforated drum, while high pressure jets of water are played on the mass from the center of the drum. The washed, shredded mass of viscera is dropped into a large underground tank and from there is transferred through a closed pipe to a separate rendering retort by air pressure. The fat thus produced is kept separate, but the residue is transferred into the other process to be ground into meal. The area near the shredding machine and the washer is grossly contaminated by tissue particles and intestinal contents, as may be inferred by the coating of all nearby surfaces, and coliform bacterial counts done in the vicinity of these machines revealed up to 2,300 coliform organisms per 1,000 liters of air.

Conclusions

Thus, in spite of our failure to recover organisms from the premises of the suspected source, it appears most likely that this was the origin of the organisms causing the 1959 Q fever outbreak in Alameda and Contra

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Costa Counties. Further, it appears that the problem has existed for some time, but became more widespread and acute as a result of the abnormally hot, windy, dry weather which occurred in the summer of 1959. It appears that the outbreak was caused by an intermittent release of the organisms from one or more sources in the area named, and that the more distant airborne dissemination was dependent to a large degree upon the warm, dry, northwest wind which was prevalent in the late afternoon during the spring and summer of 1959.

This study has served to re-emphasize the reported characteristics of *Coxiella burnetii*, especially as to its extreme infectiveness, the ease with which it can be disseminated, and the high resistance which it shows to drying and exposure. In addition, it has again demonstrated the premise that disease is, to a large degree, where you seek it. Most of the cases studied had been seen by physicians, but Q fever was rarely a major consideration in the differential diagnosis of the non-specific fever, malaise, and anorexia which these patients exhibited. Two of these patients were physicians themselves, but the disease was not diagnosed as Q fever until the level of suspicion had been raised as a result of the epidemiologic investigation. Q fever can be an urban problem, for we have indications that wind-borne dissemination occurred up to a distance of ten miles in this outbreak. The index of suspicion must be raised to discover occurrences of this type. Such occurrences are no longer isolated in these days of rapid and wide movement of potentially infective materials among an unsuspecting and susceptible population.

Calcutta, India, took a dim view of swimmers frolicking in its water supply reservoir, and posted a "No Swimming" ban. But, Calcuttaers took an equally dim view of the restrictions and continued to use the area. Now, the city no longer has to worry about surreptitious bathing in its drinking water because it has an around the clock "police" force to keep trespassers out of the water. Water officials solved the problem quickly, effectively and inexpensively by merely dumping a few crocodiles into the reservoir. A large sign at the site, proclaiming, "Danger—Crocodiles", has shed new light on the swimmers' dim view. *Water Works Engineering*, April, 1960.

Alameda County Health Department Moves to New Building



The Alameda County Health Department moved its headquarters into a new building last month. The five-story structure is located on county-owned property at 499 5th Street, Oakland and houses about 150 administrative, clinic and laboratory workers from three former locations. Its 50,000 square feet of floor space enables the health department to bring together its executive offices and serves as district headquarters for downtown, north, and west Oakland. District health centers in Alameda City and San Leandro continue to provide decentralized services to the people of Alameda, east Oakland and southern Alameda County.

The \$1,341,837 building was financed by federal, State and county appropriations. Federal Hill-Burton funds totalling \$403,174 were allocated in 1957 by the State Hospital Advisory Council, and the State and the county each contributed a like amount. The Alameda County Board of Supervisors provided an additional \$132,315 to complete construction. The building was begun in April, 1959, and completed in September, 1960. The move was officially completed October 4, 1960.

The California Conference of Local Health Officers is holding its November meeting in the new building. Open house plans for other groups will be announced at a later date.

Since consolidation with the Oakland and Alameda City Health Departments in 1957, the Alameda County Health Department provides services to 15 of Alameda County's 17 cities and townships.

New Medical Officer Joins Department Staff

Clara E. Vambery, M.D., joined the staff of the California State Department of Public Health in October as Medical Officer in the Bureau of Crippled Children Services. Dr. Vambery's medical and public health experience includes work as clinician for the New York City Department of Health from 1945 to 1946; as a county health officer in Mississippi from 1946 to 1951; as school physician in San Bernardino County from 1952 to 1959;

and as Director of Maternal and Child Health, Long Beach City Health Department, from 1959 to 1960.

Dr. Vambery graduated from the Dazmany Peter University in Hungary in 1937, and received her MPH degree from the School of Public Health, University of California, in 1950. She is a diplomate of the American Board of Public Health and Preventive Medicine.

Dr. Vambery will have headquarters in the Los Angeles Office.

HEALTH DIVISION RECOMMENDATIONS—GOVERNOR'S CONFERENCE ON AGING

During the Governor's Conference on Aging held in Sacramento on October 3rd and 4th, a number of recommendations were made in preparation for California's participation in the White House Conference on Aging to be held in January 1961. Below are the recommendations of the Health Care and Rehabilitation Division, of which Leon Lewis, M.D., Oakland, was chairman. Other divisions at the conference were: Economics and Employment; Social Services and Family Life; Housing; Education; The Role and Training of Professional and Volunteer Personnel; Free Time Activities; Recreation, Voluntary Services and Citizenship Participation; Religion; Research; and Organization.

DIVISION II

HEALTH CARE AND REHABILITATION

The opinions and recommendations of several hundred earnest people who have met in 14 discussion groups to discuss the broad field of health for the aging cannot be condensed easily and accurately. As chairman of this division we have, therefore, had to be selective as well as concise in preparing this summary.

This conference recognizes the key importance of health in the general problem of aging. Meeting the health needs of older people demands not only the best of preventive and therapeutic medicine, but also integration of health services with better housing, employment, and recreational opportunities. To help assure physical and mental health in later years, the community must afford continued opportunity for all regardless of age: continued education, productive leisure activity in the creative arts, appropriate athletics, and the chance to work for gain or for self expression.

Health Services

Health services for the elderly should include the whole spectrum of modern medical and psychosocial techniques. In view of the special vulnerability of the older person to disability from undiagnosed chronic disorder and from lack of activity, the greatest emphasis in care must be placed upon early diagnostic, preventive, and rehabilitative services. These health services for the adult should build upon the prevailing system of medical practice in the United States, utilizing in fullest measure the confidential and supportive services of a

personal physician. However, additional community health resources must aid and supplement the physician. These should include counseling, case-work, visiting nurse, nutrition, and coordinated rehabilitative as well as spiritual services. Basic to the success of these community efforts, physicians must cooperate with such services. The individualistic concept of medical practice must be augmented by community approaches to the health problems of the elderly.

Broadened services will require a variety of health resources ranging from independent physicians to well integrated health teams for restorative care. The inseparability of physical and psychological aspects of disability, especially among the elderly, calls for new concepts in the whole range of health activities, including mental health services. Both the organization and the components of health services have been considered. While no blueprint can be offered at this stage of deliberation, the need for diagnostic facilities, day care centers, mental hygiene out-patient and home services, "half-way houses," regional rehabilitation centers as well as new self-care and other services in hospitals has been stressed. Within these structures as well as in independent practice the resources of the dental, optometric and podiatric professions should be afforded the elderly. In rehabilitation centers under medical direction the whole gamut of medical specialty including psychiatric skills should be available to participate in teamwork with nursing, physical and occupational therapy, social work, group work, recreational therapy and vocational rehabilitation for maximal restoration of health and function.

Financing Health Services

Financing health services for the aged has become a major public issue. Participants in the Health Division of this Conference reached *general agreement* that:

1. Senior citizens are entitled to the full range of health services, including promotion of health, prevention of disease, diagnosis and treatment and rehabilitation.
2. Present means of financing are inadequate.
3. Expansion of both private and public sources of financing is needed.

4. In respect to private financing:
 - (a) Benefits must be continued—not curtailed, as in so many current policies—with advancing age.
 - (b) Legislation is needed to control health insurance practices, especially of the commercial companies, so that they will better meet the needs of older people.
5. In respect to public financing: (a) The new medical care funds available for OAS recipients should be used for rehabilitation, as a high priority need. (b) Regardless of source of public financing, there should be local administration of services. (c) Preservation of the dignity of the individual is a paramount element in health services for the aged provided by public financing.
6. Regional planning of health services for the aged, as well as for the rest of the population, should be started promptly as a means of improving quality of care and making it more available to people needing it.
7. More research into economic and quality aspects of health care for the aged is needed urgently, as a basis for planning the substantial expansion of services in the years ahead.

Participants expressed *difference of opinion* in that:

1. Those advocating extension of the private mechanism as the major means of meeting the problem—mainly spokesmen for the medical profession and the insurance industry—stressed individual responsibility as the basis for expanding health services.
2. Many senior citizens, most union spokesmen and some representatives of ancillary health professions called for social responsibility as the basis for expanding services. They advocated use of the existing social security mechanism as a means of raising funds for health services for older people.

Future Role of State and County Hospitals

Another important consideration is the question of the future role of state hospitals for the mentally ill and county hospitals for the indigent sick and disabled. Experience in several California institutions shows that a

large percentage of the disturbed and disabled who fill these institutions can be restored to a life outside. Public funds should be used to support the trend away from custodial care and toward active, restorative services. Expansion of services for out-patient and home care should supplement, and actually replace, some hospital programs.

The most cogent indictment of the current system of custodial neglect was contained in a comparison of morally unacceptable euthanasia with its equally immoral process of incarceration, deprivation and isolation of the elderly. Many become incompetent and dependent not primarily because of their disease, but as a result of the custody in institutions which in actuality is neglect, conditioned by false economy and ignorance. False economy is often the basis for bad programs not only in public hospitals, but also in privately operated nursing homes where economic advantage may be gained by prolonging dependency. Quality control by professional and governmental bodies must be supplemented by educational programs available to all institutions providing care for the elderly and impaired. Research and educational programs are especially needed to improve the quality of all health facilities.

Application of Research Findings

The crusade for the good life, regardless of age, rests upon research. However, the most urgent problem is to utilize the knowledge already available and awaiting application. Accelerating the change of practice with emphasis on early aggressive care could restore innumerable individuals to the normal stream of life and prevent the deterioration of many thousands more. Most in need of expansion are the two ends of the spectrum of health care, i.e., preventive and rehabilitative services, such as:

1. Promotion of periodic health checkups for the aged, as a means of early detection of disease.
2. Stepping up health education programs for the aged especially utilizing the mass media which are now so much filled with misinformation.
3. Expansion of training opportunities in the health professions for work with the elderly, including scholarships to attract capable people into the field. The training of

Dr. Breslow and Department's Chronic Disease Program Receive Lasker Award

The 1960 Albert and Mary Lasker Foundation awards were announced in New York on October 20 in advance of the annual meeting of the American Public Health Association in San Francisco, where the formal presentation of the awards was made on November 3rd.

Seven awards were made for breakthroughs in medical research and advances in public health programs directly benefiting millions of human beings throughout the world.

The awards were made:

In Medical Research (Joint Award)

1. *Francis H. C. Crick, Ph.D.*, Cavendish Laboratories, Cambridge University, Cambridge, England;
2. *James D. Watson, Ph.D.*, Biology Department, Harvard University, Cambridge, Mass.; and
3. *Maurice H. F. Wilkins, Ph.D.*, Medical Research Council, Biophysics Research Unit, King's College, London, England, for demonstrating that the chemical of heredity in human cells, deoxyribonucleic acid (DNA), is made up of two intertwining molecular chains. This knowledge may well serve to transform agriculture and animal husbandry, making it possible to alter inherited characteristics.

In Medical Research (Joint Award)

2. *James V. Neel, M.D.*, Institute of Human Biology, University of Michigan, Ann Arbor, Michigan; and
3. *Lionel S. Penrose, F.R.S.*, University College, University of London, London, England, for major contributions to the development of modern human genetics and significant findings about the effect of nuclear and other radiation on human beings and their offspring.

In Medical Research (Joint Citation)

3. *Ernst Ruska, Dr. Eng.*, Berlin Institute of Technology, West Germany; and *James Hillier, Ph.D.*, RCA Research Laboratories, Princeton, New Jersey, for the design, construction and perfection of the electron microscope as an essential tool of modern medical research.

In Public Health (Special Award)

4. *Abel Wolman, Dr. Eng.*, Johns Hopkins University, Baltimore, Maryland, for

health personnel in gerontology should emphasize communication and working relationships with other professional groups.

4. Strengthening mental health services by coordination with general medical services and by providing mental health consultative services to all health personnel working with the aged.

distinguished contributions to public health and safety in sanitary engineering, water supply development and control of radiation hazards.

In Public Health (Individual Award)

5. *John B. Grant, M.D.*, School of Medicine, University of Puerto Rico, San Juan, Puerto Rico, for more than forty years of inspired leadership in promoting the health and well-being of the peoples of pre-communist China, post-war India and present-day Puerto Rico.

In Public Health (Group Award)

6. *The Crippled Children's Program, The Children's Bureau, U.S. Department of Health, Education and Welfare, Washington, D.C.*, for pioneering a program of medical care which has vitally helped four and a quarter million handicapped children in the past 23 years.

Arthur Lesser, M.D., Director, Division of Health Services, Children's Bureau, accepted the award.

In Public Health (Group Award)

7. *The Chronic Disease Program, California Department of Public Health, Berkeley, California.*

Lester Breslow, M.D., Chief, for developing a pioneer state disease control program in the fields of alcoholism, obesity, cancer, air pollution and general morbidity.



LESTER BRESLOW, M.D.

Of particular interest to Californians was the final award made to Dr. Lester Breslow and the Chronic Disease Control Program of the California State Department of Public Health. This citation read:

This group award is in recognition of a concept, an organization, and a public health physician.

The concept is that the prevention and control of chronic disease should be a matter of public health concern. While this is generally accepted today, it was not so fifteen years ago.

The organization is the California State Department of Public Health and its Chronic Disease Control Program. Started in 1946, this program has been steadfastly supported by the Department and its leadership role has been great. Proper concern with discovery of the extent and causes of chronic illness soon led to the undertaking of research, and this, in turn, to a broadening of the appreciation and application of available skills and knowledge in disciplines other than those to which we in public health were habituated—such as the behavioral sciences. Thus, the scientific team approach became an important part of this undertaking.

This farsighted activity on the part of the California State Department of Public Health was among the earliest organized programs by an official health agency in this country. However, as with any new group undertaking, it required leadership. So let us turn to the leader—the physician.

When Doctor Lester Breslow became the first chief of the newly-created Bureau of Chronic Disease Control in California in 1946, he did so with a vision and a purposefulness that were, indeed, unique. For fifteen years he has devoted his efforts and abilities almost exclusively to the challenge of the chronic diseases. As statesman, administrator, and inspirer of group research, he ranks high among those who have carried our understanding of etiology, prevalence, and control to levels little thought possible two decades ago. The many studies under his guidance in the fields of multiphasic screening, morbidity survey technics, etiology of chronic illness, and, currently, the ecologic setting in which illness occurs, are all of outstanding importance. He and his program stand among the foremost in this field.

And so, to the concept, to the public health physician, and to the organization that has so effectively sustained them, the American Public Health Association is pleased to make this award.

Dr. Breslow has recently been advanced to the position of Chief of the Division of Preventive Medical Services, California State Department of Public Health. He is also continuing as Acting Chief of the Bureau of Chronic Diseases.

Children now being born in the United States have excellent chances of surviving through the first quarter of the 21st century—even if there is no further improvement in the average length of life, says Metropolitan Life Insurance Company.—*Orange County Public Health Reports*, Volume 9, No. 11.

At least thirty-three States and the District of Columbia have either banned the use of X-ray fluoroscopes for shoe-fitting purposes or have adopted strict regulations for such devices.—*USPHS News Release* (8-60).

Public Health Positions

Alameda County

Cerebral Palsy Therapist (Physical): Salary range, \$436-\$530. To provide services in clinics and schools for the treatment of cerebral palsied and similarly handicapped children. Requires completion of approved curriculum and one year's experience plus California registration and registration with American Registry of Physical Therapists. For further information inquire of Alameda County Civil Service Commission, 188 Twelfth Street, Oakland 7, California.

Contra Costa County

Sanitarian: Salary range, \$481-\$584. One vacancy in the county health department. Examinations are given by appointment and special arrangements for local test administration will be made for candidates who live some distance from Contra Costa County. Minimum standards require possession of a Certificate of Registration as a sanitarian in California.

Physical Therapist: Salary range, \$458-\$556. One vacancy in county health department. The examination will be administered by appointment. Minimum standards include possession of a valid Certificate of Registration as a physical therapist in California.

Information concerning either of these two positions may be obtained by writing to Contra Costa County Civil Service Department, P.O. Box 710, Martinez, California. Telephone: AC ademy 8-3000, Ext. 415.

Long Beach City

Public Health Analyst: Salary range, \$457 to \$558. Starting salary dependent upon background. Education equivalent to graduation from a recognized four year college or university including at least six semester units in statistics is required.

Public Health Microbiologist: Salary range, \$414 to \$504. Starting salary dependent upon background. A valid California certificate as a registered public health microbiologist is required.

Public Health Sanitarian: Salary range, \$457 to \$558. Starting salary dependent upon background. California R.S. required. Automobile furnished.

All positions covered by Social Security, city paid health insurance, retirement plan, twelve days sick leave and twelve days vacation yearly. Apply to I. D. Litwack, M.D., Health Officer, City of Long Beach Department of Public Health, 2655 Pine Avenue, Long Beach, California.

Orange County

Director of Environmental Sanitation: Salary range, \$677-\$842. To head a professional staff of twenty-eight. Requires California registration as a sanitarian; college graduation with a major in sanitation, sanitary science, sanitary engineering or some other scientific field; and five years experience in sanitation including two years of supervision and three years with a public health agency. Graduate study in sanitary science or public health may be substituted for non-supervisory experience on a year for year basis up to two years. Master's degree in one of these fields may substitute for two years non-supervisory experience. Last date for filing, January 1, 1961. Apply to Orange County Personnel Department, 801-C North Broadway, Santa Ana, California.

Santa Barbara County

Director of Public Health Nursing: Salary range, \$527-\$641. Requirements include a bachelor's degree, eligibility for the California State public health nursing certificate, and completion of at least three years' experience in public health nursing, two years of which have been in a generalized program in an organized health department. A car is provided. For further information write to Joseph T. Nardo, M.D., Health Officer, Santa Barbara County Health Department, P.O. Box 119, Santa Barbara, California.

Sonoma County

Public Health Analyst: Salary range, \$449-\$539. Candidates may qualify to start at second or third step. Minimum qualifications: graduation from an accredited college or university with specialization in statistics in public health or a closely related field, and some full-time, paid experience in technical work with statistics desirable.

Sanitarian: Salary range, \$410-\$492; to increase to \$444-\$539 effective January 1, 1961. Minimum qualification: registration as a sanitarian with the California State Department of Public Health; desirable qualifications, completion of four years at an accredited college or university, with a major in one of the natural sciences, or completion of two years at an accredited college or university, preferably with emphasis on the natural sciences, and completion of an approved course in public health.

For further information write Sonoma County Civil Service Commission, Room 110, County Administration Building, 2555 Mendocino Avenue, Santa Rosa.

AIR POLLUTION CONFERENCE ON VEHICLE EXHAUST

The Fourth Conference on Methods in Air Pollution Studies is being arranged by the Air and Industrial Hygiene Laboratory on December 5-6, 1960, at the Mobil Oil Building in Los Angeles. The theme of this conference is studies of motor vehicle exhaust with papers on the chemical and engineering investigations of exhaust gases, their reactions and air pollution effects presented by investigators from organizations in California and throughout the country which have interests in air pollution. A tour of the research and test facilities of the Los Angeles County Air Pollution Control District will be a feature of the program which will be of interest to technical staffs of agencies concerned with air pollution in California.

Data from the U.S. National Health Survey revealed that only about one-third of the population of the United States visited their dentist within a one-year period.—*Health Statistics*, Series B—No. 14, U.S. Public Health Service.

Californians Take Lead in Alcoholism Groups

John R. Philp, M.D., chief of the State Department of Public Health's Division of Alcoholic Rehabilitation, has been elected president of the North American Association of Alcoholism Programs.

The association, which met in October in Banff, Canada, is composed of all government-supported alcoholism programs in the United States and Canada.

Dr. Philp also has been named a member of the new Cooperative Commission on the Study of Alcoholism, which recently was awarded a million-dollar grant from the National Institute of Mental Health of the Public Health Service to conduct a five-year probe into alcoholism program activities.

Nevitt Sanford, Ph.D., professor of psychology at the University of California, has been appointed scientific director of the international commission's study. Scientific knowledge of alcoholism as a disease and as a social problem is to be examined and re-evaluated.

Two California institutions, the University of California and Stanford University, are being considered, among others, as possible locations for project headquarters. The study will begin next July.

Also a member of the 24-member commission, which serves as an advisory and policy group to the scientific

Insecticide Poisons Field Workers

An outbreak of phosdrin insecticide poisoning occurred among workers engaged in aerial crop spraying operations near Bakersfield this summer.

More than 15 cases were hospitalized and at least twice that many were treated as out-patients for phosdrin poisoning.

Phosdrin is a potent liquid organophosphorous insecticide with a physiological action similar to that of parathion. It is extremely poisonous to animals and man, particularly when absorbed through the skin by contact, or through the lungs by inhalation.

Experience has shown that strict observance of recommended specific precautions and safety measures for handling phosdrin is absolutely necessary if the hazard is to be reduced to a minimum.

Investigations by a physician and an engineer from the California State Department of Public Health's Bureau of Occupational Health, in cooperation with engineers from the State Department of Industrial Relations, clearly demonstrated that the inadequate observance of such precautions was the primary cause of the outbreak.

director and his staff, is Andie Knutson, Ph.D., director of the Russell Sage Foundation's behavioral science project at the University of California School of Public Health.

Personals

Dr. Edwin H. Lennette, Chief of the Viral and Rickettsial Disease Laboratory, California State Department of Public Health, has been appointed to the Microbiology Advisory Panel of the Committee for the Study on Manpower Needs in the Basic Health Sciences, recently established by the Federation of American Societies for Experimental Biology. He was also recently appointed to serve on the Tropical Medicine and Training Grants Committee of the National Institute of Allergy and Infectious Diseases, Public Health Service.

Nature has for centuries been conducting gigantic experiments as to the effect of climate, of type of work, of diet, and of local or worldwide, diseases on men, women, and children of different races, that are spread out before our very eyes for us to record and to analyze, quite readily yielding information that might never be obtainable by our own experiments on man, although certain tests could be added to enrich the findings. Under the most exacting conditions animal experiments of this sort cannot be completely applied to man; important clues and discoveries can result from experiments on animals, but if we rely only on them we are letting go to waste an equally important source of information about disease.—*Patterns of Incidence of Certain Diseases Throughout the World*, U.S. Government Printing Office.

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